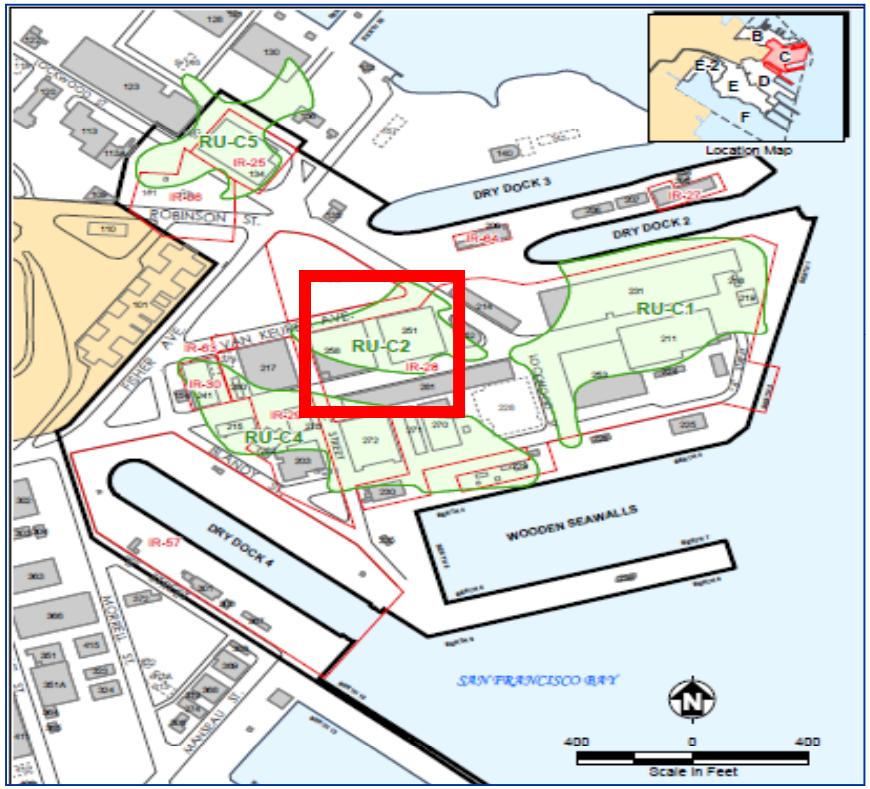
RU-C2 Pre-Characterization
PARCEL C

Hunters Point Naval Shipyard
May 2012

Contract No. N62473-06-D-2206
Delivery Order No. 0093

RU-C2 Overview

- RU-C2: Located west of RU-C1 and north of RU-C4
- Key Features- Buildings 258 and 251
- Two VOC plumes in groundwater
- Primary Groundwater COCs- TCE, PCE, chlorobenzene
- Primary soil COCs- arsenic, lead, zinc, PAHs



RU-C2 Location Map

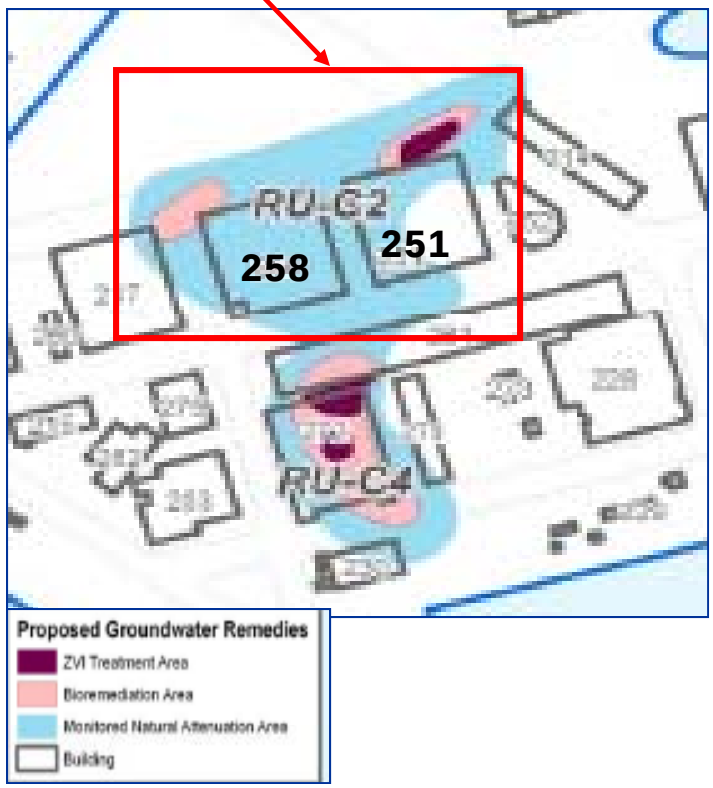
ROD Summary- Groundwater

- Remedial Action Per Final ROD
- In-situ remediation of VOCs in groundwater
  - ZVI Remediation Area
    - PCE > 15 ug/L
    - TCE > 110 ug/L
  - Bioremediation Area
    - VOCs exceed respective RGs by 10-50 times after ZVI injections
  - MNA Area

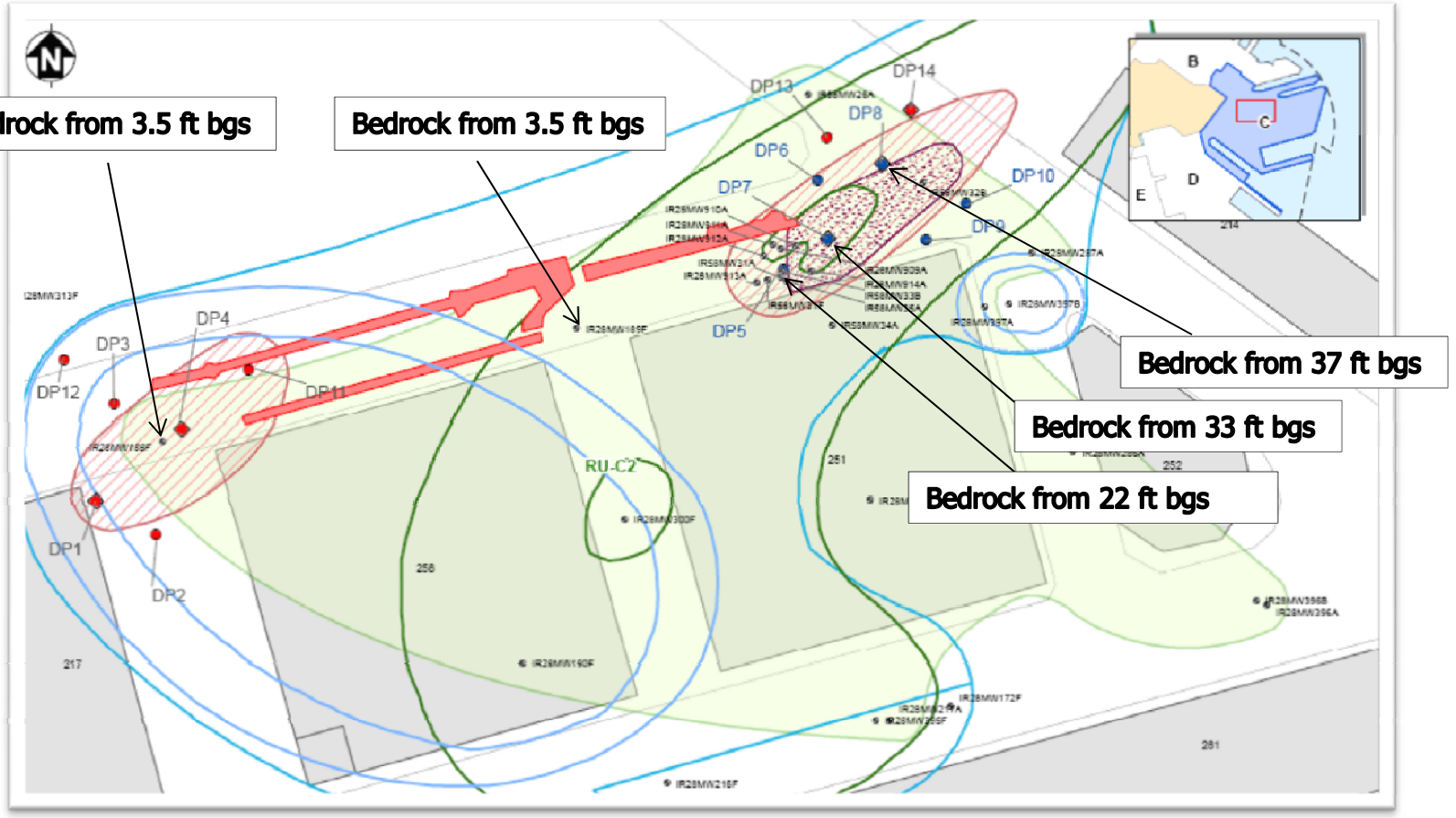
Areas for groundwater treatment were refined during the initial characterization studies in February 2012.

- Unable to collect groundwater at Bldg. 258 (shallow bedrock).
- Collected soil vapor samples at nine locations through BCT concurrence.

RU-C2 groundwater remediation area



Occurrence of Bedrock

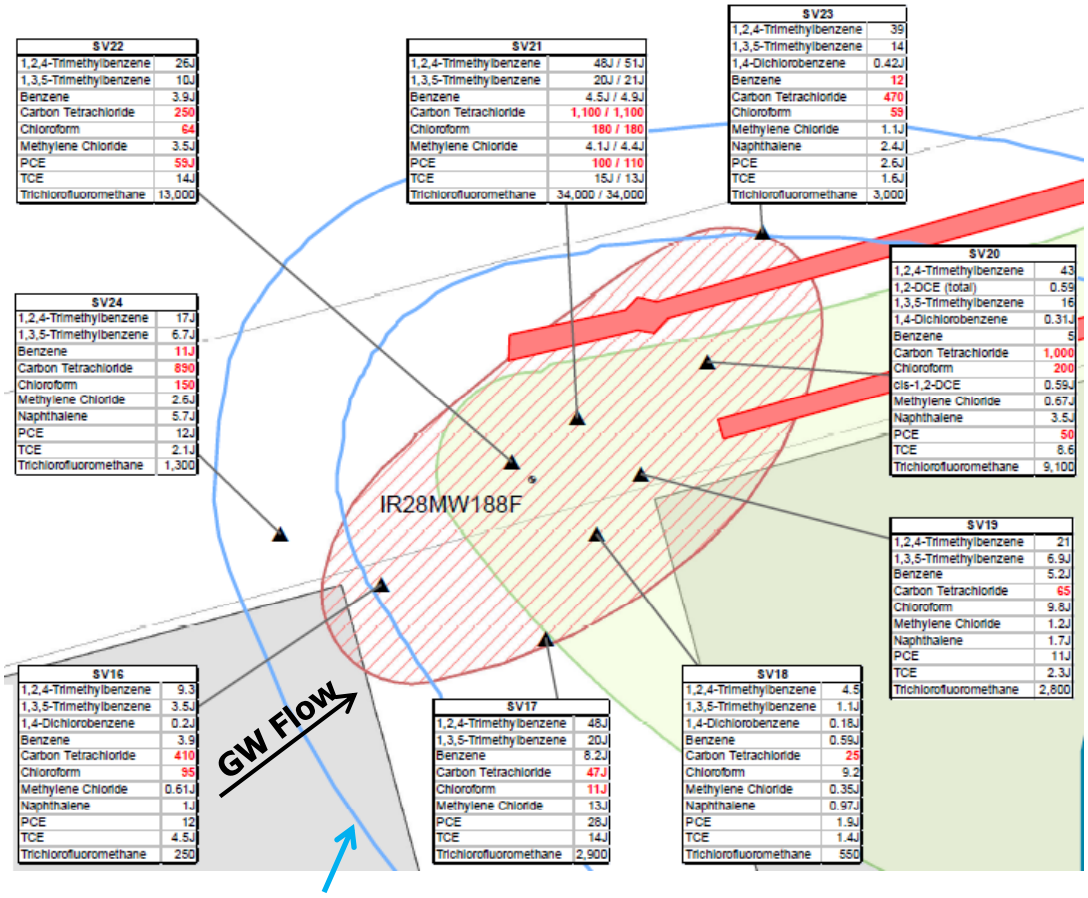


Pre-Design Investigation Activities-2012

Building 258 Soil Vapor Results

- COC Exceeding SGALs
  (9 samples total)
  - Benzene (2/9): Max. 12 µg/m³ vs SGAL 8.39 µg/m³
  - Chloroform (7/9): Max. 200 µg/m³ vs SGAL 10.6 µg/m³
  - PCE (3/9): Max. 110 µg/m³ vs SGAL 41.2 µg/m³
  - Carbon Tetrachloride (9/9): Max. 1,100 µg/m³ vs SGAL 5.79 µg/m³
- Carbon Tetrachloride is the primary COC in this area.

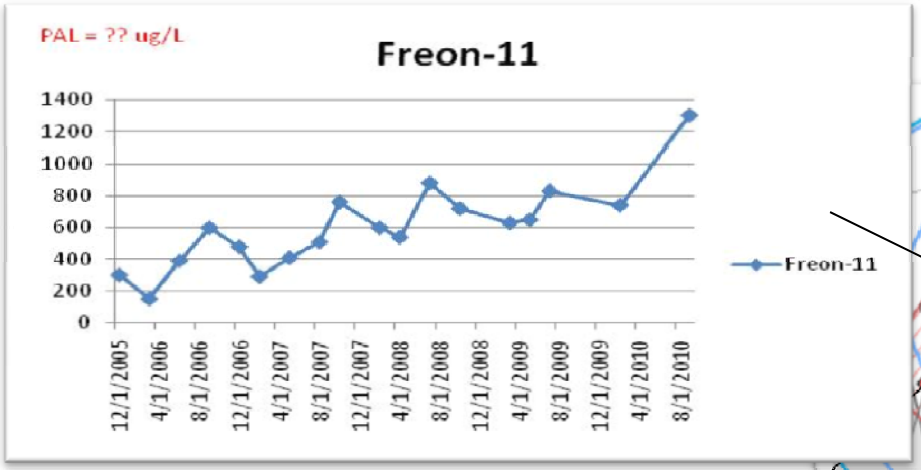
Building 258 VOC Remediation Area

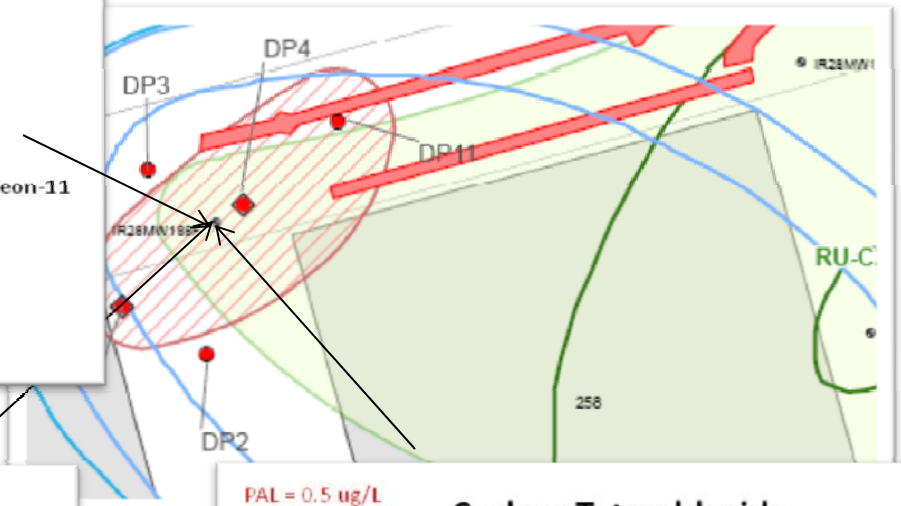


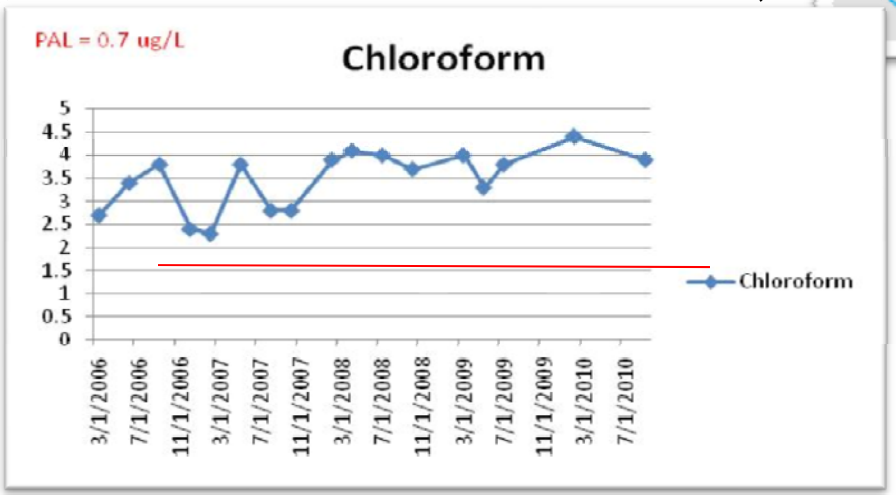
Pre-Design Investigation Activities-2012

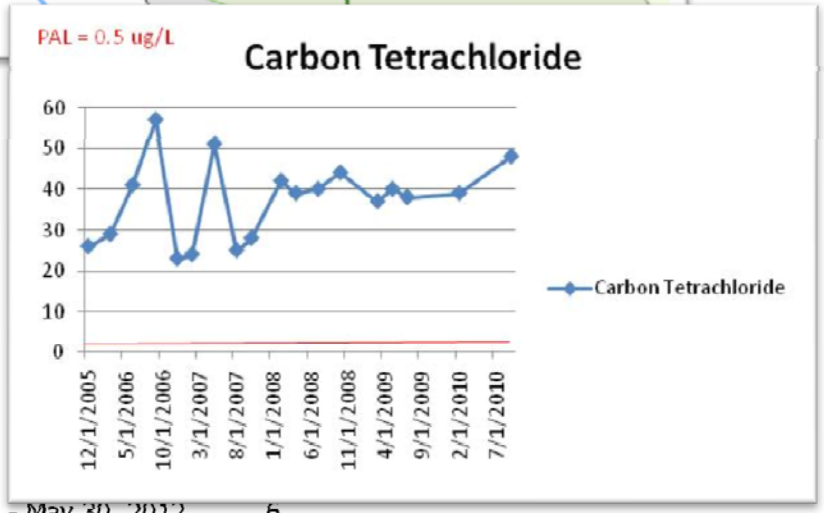
IR28MW188F Groundwater Trends

Building 258 VOC Remediation Area







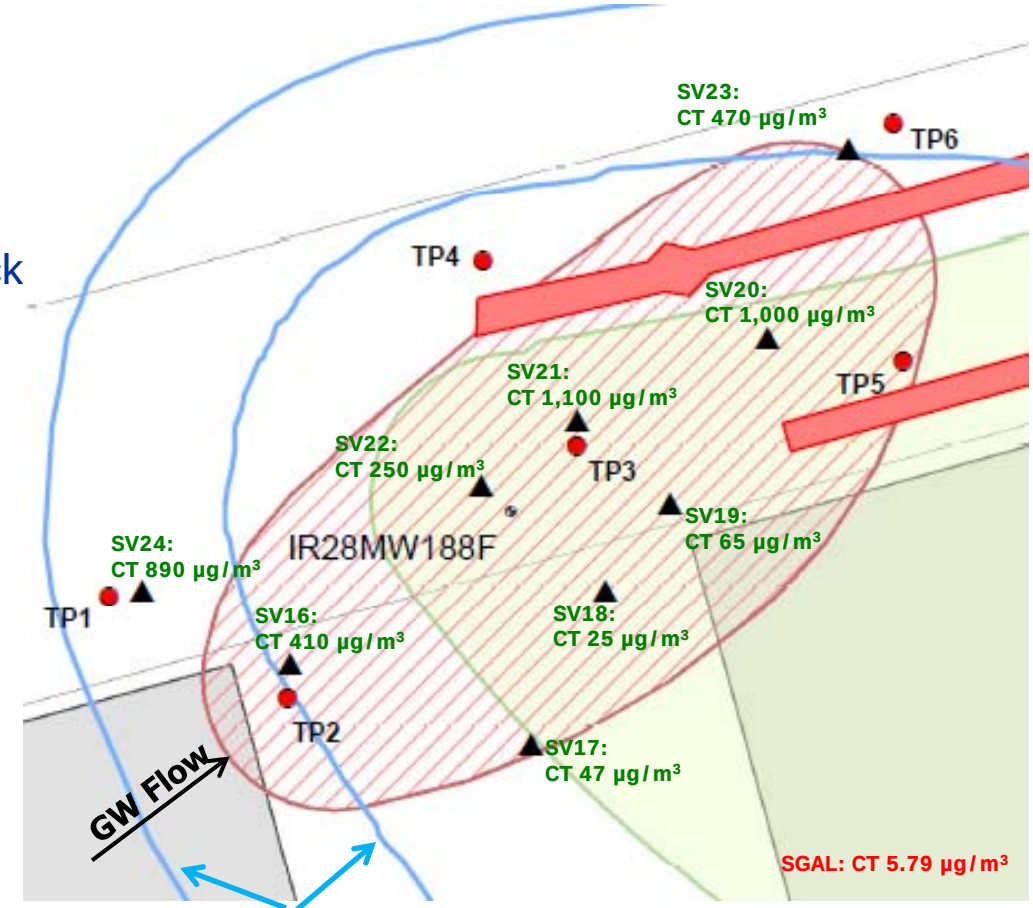


Pre-Design Investigation Activities-2012

Building 258 Proposed Groundwater Investigation

- Attempted drilling with direct-push but encountered competent bedrock (serpentine) at 3 feet bgs (Feb. 2012)
- Propose air rotary rig to penetrate bedrock and drill to 20 feet bgs at 6 locations (TP1–TP6)
  - TP1 and TP2: assess potential secondary source from Building 217.
  - TP4, TP5, and TP6: delineate boundary of the bioremediation area.
  - TP3: target the "hot spot" where the highest carbon tetrachloride concentration was detected in soil vapor.
  - TP3 and TP6 will be drilled to 50 feet bgs for vertical delineation ("hot spot" and downgradient locations).

Building 258 VOC Remediation Area



carbon tetrachloride iso-concentration contour in groundwater

Pre-Design Investigation Activities-2012

- Schedule
  - Building 251 soil, groundwater, and soil vapor investigation — Feb. 13-17, 2012
  - Building 258 soil vapor investigation — Apr. 16-17, 2012
  - Building 258 groundwater investigation (tentative) — Jun. 11-15, 2012
  - Sample analysis and data validation — Jun. 18-Jul. 3, 2012
  - Technical Memorandum — Jul. 5, 2012

Things to consider:

- **The Draft Final Parcel C RD is currently scheduled for July 2, 2012. It may not be possible to get all the groundwater data at RU-C2 in the Draft Final RD, unless we delay the Draft Final RD by two weeks.**
- **The Draft RAWPs for Parcel C could be submitted prior to the Final RD, approximately one month following the Draft Final RD in order to expedite the Parcel C RA work.**